

Toughbook Arbitrator WIRELESS TRANSCIVER SYSTEM

CCR24PNA

User Guide



Read this user guide carefully for safe operation and proper use of the product.

Features and specifications are subject to change without notification.

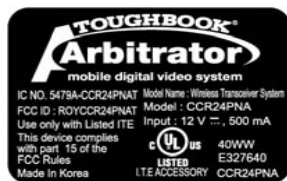


TABLE OF CONTENTS

Section	Page
Caution/Warning	2-4
Package Contents	5
Descriptions	6-10
Installation & Operation	11-12
Troubleshooting	13
Specifications	14

SPECIFICATIONS

Power	DC 12V for RX
Frequency (MHz)	2.4GHz FHSS with 2,400 ~ 2,483MHz
Number of Channel	95 Channels
Channel Space	864KHz
Speech Coder	32Kbps ADPCM with Parity
Type of Modulation	GFSK MODULATION / DEMODULATION
Data Rate	576Kbps Time Division Duplex
Receiver Sensitivity	Min: -90 dBm Typ.: -92 dBm to -94 dBm @BER = 0.001 Max: -96 dBm
Power Consumption	Maximum when charging: 610mA
Battery	Talk Time: 12 Hours Charge Time: 3 Hours
Battery Capacity	Lithium-Ion Polymer 3.7V DC/1300mA
TX Power Levels	Approx. 260 mW
Temperature Range	Operating: 32°F ~ 113°F (0°C ~ 45°C) Storage: -4°F ~ 113°F (-20°C ~ 45°C)
Dimensions (L x W x H)	TX: 53mm x 25mm x 72.5mm (2.1" x 1.0" x 2.9") RX: 100.5mm x 38.5mm x 67.5mm (4.0" x 1.5" x 2.7")

CAUTION

Warning

- (1) Immediately discontinue use of the battery if, while using, charging, or storing the battery, the battery emits an unusual smell, feels hot, changes color, changes shape or appears abnormal in any other way. Contact your authorized reseller or Panasonic if any of these problems are observed.
- (2) Do not place the batteries in microwave ovens, high-pressure containers, or on induction cookware.
- (3) In the event that the battery leaks and the fluid gets into one's eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated the battery fluid could cause damage to the eye.

Caution

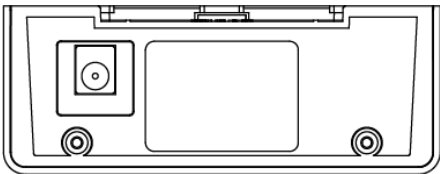
- (1) If the device is to be used by small children, an adult should explain the contents of the user's manual to the children. The person should provide adequate supervision to insure that the device is being used as explained in the user's manual.
- (2) When the battery is worn out, insulate the terminals with adhesive tape or similar materials before disposal.

Danger

Be sure to follow the rules listed below while charging the battery. Failure to do so may cause the battery to become hot, explode, or ignite and cause serious injury.

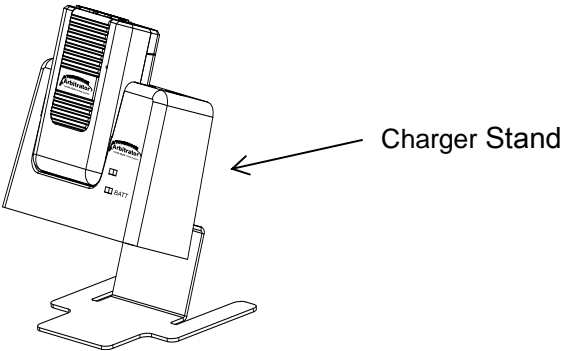
- When charging the battery, either use a specified battery charger or otherwise insure that the battery charging conditions specified by Panasonic are met.
- Do not attach the batteries to a power supply plug or directly to a vehicle's cigarette lighter.
- Do not place the batteries in or near fire, or into direct sunlight. When the battery becomes hot, the built-in safety equipment is activated, preventing the battery from charging further, and overheating the battery, which would destroy the safety equipment and can cause additional heating, breaking, or ignition of the battery.

INSTALLATION – Desktop Charger



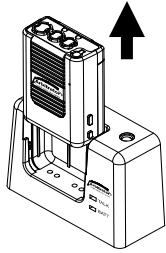
Battery LED:
RED = Charging
GREEN = Fully Charged

Installation for Charger Stand



TIP 1: How to undock TX from RX and Home Charger





To prevent units from being broken, undock the TX from the RX as shown in the image to the right.



PACKAGE CONTENTS

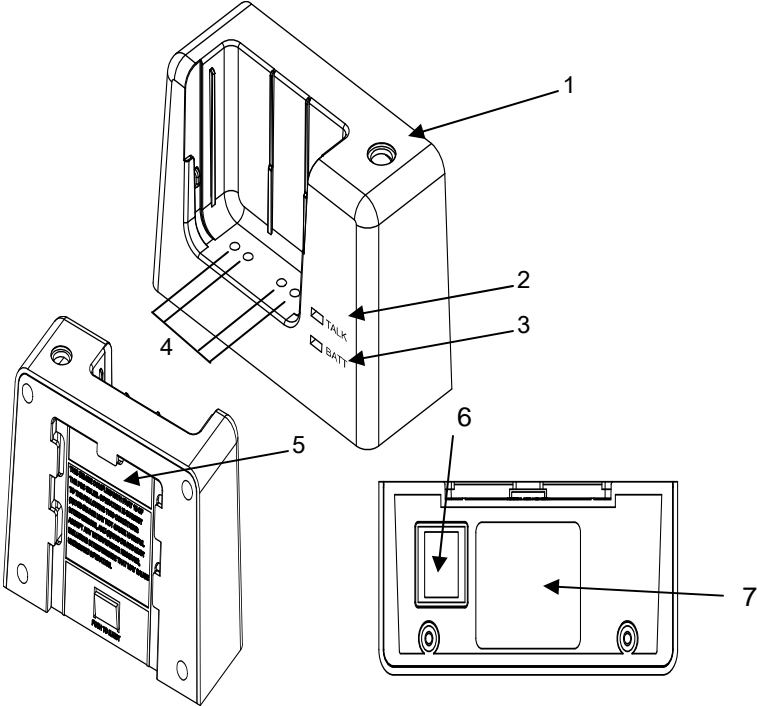
- Transmitter (TX)
- Receiver (RX)
- Plug-in Microphone (MONO)
- Mounting Bracket for Receiver with Screws
- Rechargeable Li-Ion Battery
- Leather Pouch
- External Antenna
- Desktop Charger for Transmitter
- AC Power Supply for Desktop Charger
- Charger Stand for Desktop Charger
- RF Main Cable
- In-car Microphone (MIC)
- User Guide

DESCRIPTION – Transmitter (TX) LED's

Mode	TALK Push ↔ REC		Low Battery	Out of Range	Mute Push OFF ↔ ON	
						
LED + Vibration	GREEN On	Vibration (1 time only)	Vibration (1 time per second)	Vibration (2 times per 3 seconds)	TALK REC OFF: GREEN On REC: GREEN Blink	Vibration (1 time per 5 seconds)
		GREEN Blink	RED Blink	RED On		TALK: Green On & Red Fast Blink REC: Green Blink & Red Fast Blink
Vibration	LED OFF	Vibration (1 time only)	Vibration (1 time per second)	Vibration (2 times per 3 seconds)	LED OFF	Vibration (1 time per 5 seconds)
		LED OFF	LED OFF			LED OFF
No Vibration No LED	No Vibration LED OFF (GREEN Off , RED Off)					

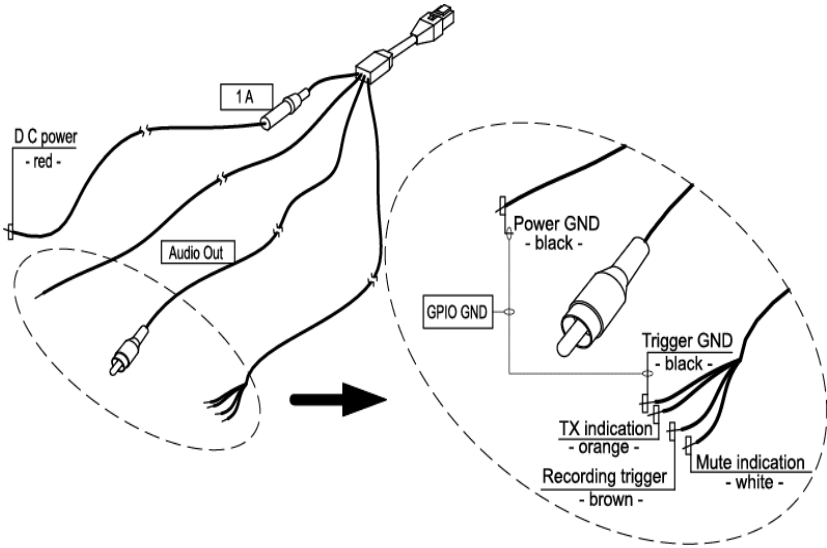
- Notes:
- 1) After synchronization, the mode goes back to its previous selected mode
 - 2) When TX is Off and inserted to RX, there will be no synchronization
 - 3) If the TX goes out of range, it will resume its previous status when it comes back into range

DESCRIPTION - Receiver



1	Antenna Connection	5	Serial Number Label
2	Audio Recording LED	6	Main Cable Connection
3	Battery Charging LED	7	FCC, UL, IC Labels
4	Charging PIN/Matching ID		

DESCRIPTION – RF Main Cable



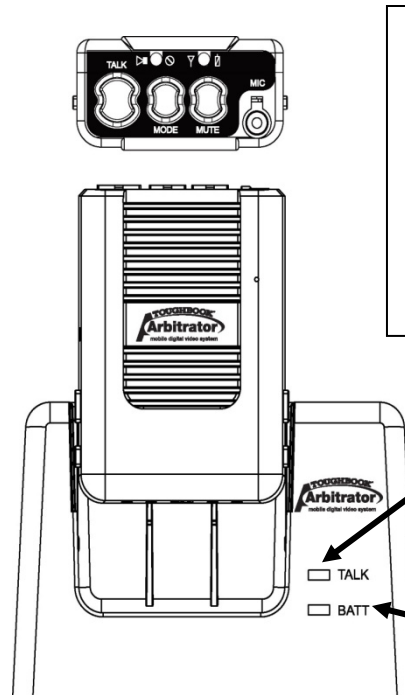
Important:

- The following ground cables have to be connected together
 - CCR24PNA Power ground cable
 - CCR24PNA Trigger ground cable
 - Recorder GPIO ground cable

Connection with the system

- *Audio Out*: Connects to “Audio In” port in the back of the recorder
- *Power (Red), Power GND (Black)*: Connect to the engine battery
- *TX Indication (Orange)*: Connect to GPIO cable
- *Mute Indication (White)*: Connect to GPIO cable
- *Trigger REC (Brown)*: Connect to GPIO cable
- *Trigger GND (Black)*: Connect to GPIO ground cable

DESCRIPTION – Receiver (RX) LED's



The top control panel shows three buttons labeled TALK, MODE, and MUTE, along with a MIC input. The side view shows the battery cover with two LEDs labeled TALK and BATT.

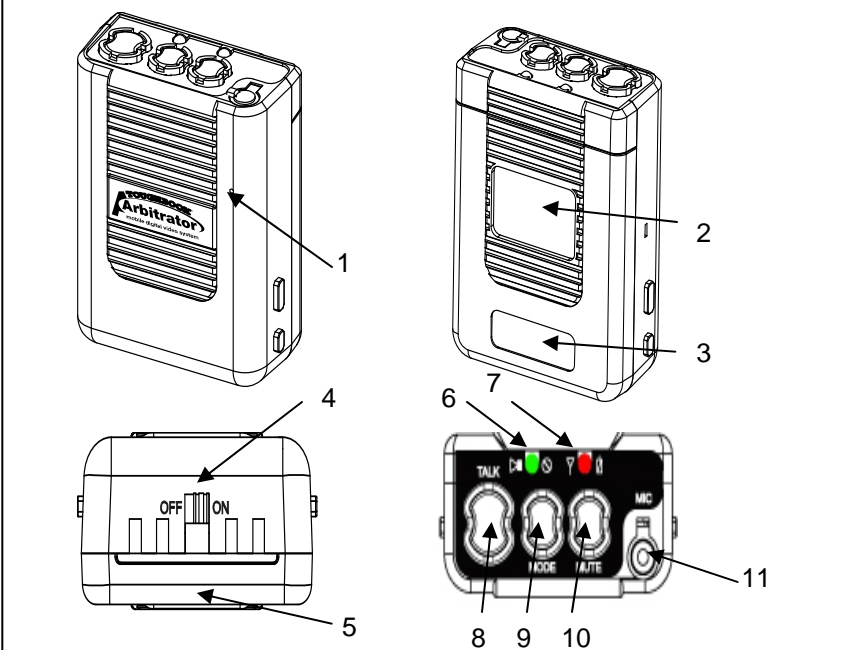
Note: When the TX is docked in the RX, the **GREEN** Talk LED will blink once. If it continues to blink, please refer to Troubleshooting section for more details.

Note: When fully charged, the TX stops drawing current from the battery to prevent overcharging.

Audio Recording LED:
GREEN = Unit recording (after the TX Talk button has been pressed)

Battery Charging LED:
RED = Charging
GREEN = Fully charged

DESCRIPTION – Transmitter (TX)



The front view shows the built-in MIC (1), FCC/IC/UL labels (2), and Serial # label (3). The back view shows the TX Power On/Off Switch (4) and the Battery Cover (5). The top view shows the LED Indicator (6), Talk Button (8), Mode Selection Button (9), Mute Button (10), and Lapel MIC Input (11).

1	Built-in MIC	7	LED Indicator (see pg 10)
2	FCC, IC, UL Labels	8	Talk Button
3	Serial # Label	9	Mode Selection Button
4	TX Power On/Off Switch	10	Mute Button
5	Battery Cover	11	Lapel MIC Input
6	LED Indicator (see pg 10)		

INSTALLATION & OPERATION

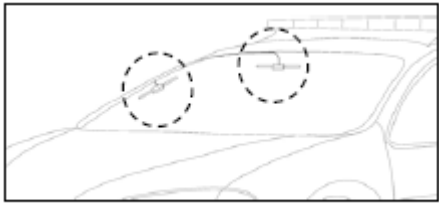
Installation must only be conducted by a qualified technician

Installation:

- 1) Install the mounting bracket by using the screws
- 2) Slide the RX Set onto the bracket
- 3) Connect the main cable to the RX
- 4) Connect external antenna to the RX

Antenna Location:

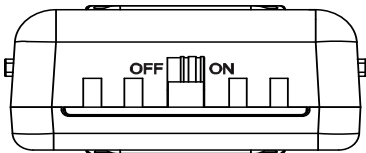
- 1) Place external antenna on the windshield at the point (Horizontal or Vertical) as shown in the following picture:



< External Antenna Installation >

Operation:

- 1) Charge the TX for at least 3 hours
- 2) Switch the power on (**located on the bottom of the TX**)
- 3) Place the TX into the RX to synchronize



Note: Disconnect the battery or turn off the device when the TX is not in use for long periods of time

CAUTION

Warning

Do not continue charging the battery if it does not charge within the specified charging time. Doing so may cause the battery to become hot, explode, or ignite. There is a risk of explosion if the battery is replaced by an incorrect type.

Dispose of used batteries according to the instructions.

2. While Charging

Caution

The temperature range over which the battery can be charged is 10°C to 45°C. Charging the battery at temperatures outside of this range may cause the battery to become hot or to break. Charging the battery outside of this temperature range may also harm the performance of the battery or reduce the battery's life expectancy.

3. When Discharging the Battery

Danger

Do not discharge the battery using any device except for the specified device. When the battery is used in devices aside from the specified device it may damage the performance of the battery or reduce its life expectancy, and if the device causes an abnormal current to flow, it may cause the battery to become hot, explode, or ignite and cause serious injury.

Caution

The temperature range over which the battery can be discharged is -10°C to 45°C. Use of the battery outside of this temperature range may damage the performance of the battery or may reduce its life expectancy.

TROUBLESHOOTING

Problem	Check points
No reception	<ul style="list-style-type: none"> - Check the battery status - Check the connection and cables - Check the communication range
Poor reception, static, noise	<ul style="list-style-type: none"> - Change the location of the RX - Check the communication range - Check to see if unit is placed near TV, speakers, or other electronic devices
Unit does not respond	<ul style="list-style-type: none"> - Check the battery status - Check the power switch on the bottom of the unit - Check the connection and cables - If the problem persists, please contact technical support
Blinking GREEN Talk LED on TX AND blinking GREEN LED on RX (when TX is docked in RX)	<ul style="list-style-type: none"> - Remove and re-insert the RF Main Cable to restart the unit. - If the problem persists, please contact technical support

TIP 2: Preserving the Batteries

To maintain the optimum capacity of the pack, the unit has to be fully discharged every 6 months. This can be accomplished by leaving the unit on. Then recharge the battery to full capacity again.

CAUTION

- 1. When Using the Battery**

Danger

(1) Misusing the battery may cause the battery to get hot, explode, or ignite and cause serious injury. Be sure to follow the safety rules listed below:

 - Do not place the battery in fire or heat the battery.
 - Do not install the battery backwards so that the polarity is reversed.
 - Do not connect the positive terminal and the negative terminal of the battery to each other with any metal object (such as a wire).
 - Do not carry or store the batteries together with necklaces, hairpins, or other metal objects.
 - Do not pierce the battery with nails, strike the battery with a hammer, step on the battery, or otherwise subject it to strong impacts or shocks.
 - Do not solder directly onto the battery.
 - Do not expose the battery to water or salt water, or allow the battery to get wet.

(2) Do not disassemble or modify the battery. The battery contains safety and protection devices which, if damaged, may cause the battery to generate heat, explode or ignite.

(3) Do not place the battery on or near fires, stoves, or other high temperature locations. Do not place the battery in direct sunlight, or use/store the battery inside cars in hot weather. Doing so may cause the battery to generate heat, explode, or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.

(4) Do not insert the battery into equipment designed to be hermetically sealed. In some cases hydrogen or oxygen may be discharged from the cell which may result in rupture, fire or explosion.